AMENDMENTS TO THE CLAIMS

Please amend claim 12 and 13 as follows:

Claims 1-3. (Cancelled).

4. (Previously Presented). A PLL frequency synthesizer according to claim 12, further comprising a buffer amplifier for protecting the voltage-controlled oscillator from an abrupt variation at a load portion of the PLL frequency synthesizer.

Claims 5-10. (Cancelled).

11. (Previously Presented). A PLL frequency synthesizer which outputs a signal having a desired frequency, comprising:

a voltage-controlled oscillator (VCO) for generating an output signal as a function of a control voltage and a power supply voltage;

a phase comparator for comparing a phase of the output signal with a phase of a reference signal and outputting a difference signal as a function thereof; and

a charge pump for producing the control voltage in response to the difference signal, the control voltage is being maintained within predetermined limits; and

wherein when the control voltage changes to a value close to one of the limits thereof, the power supply voltage is modified independently of the control voltage so as to maintain the stability of the output signal from the VCO.

12. (Currently Amended). A PLL frequency synthesizer which outputs a signal having a set frequency, comprising:

a voltage-controlled oscillator (VCO) for generating an output signal having a voltage and a frequency as a function of a control signal and a power supply signal;

a phase comparator for comparing a phase of the output signal with a phase of a reference signal and outputting a difference signal ~~in response to~~ as a function thereof; and

a charge pump for producing the control signal in response to the difference signal, wherein the power supply signal is modified independently of the control signal to thereby widen an apparent lock range of the PLL.

13. (Currently Amended). A radio communication apparatus comprising a PLL frequency synthesizer which outputs a signal having a desired frequency, the PLL frequency synthesizer including:

a voltage-controlled oscillator (VCO) for generating an output signal having a voltage and a frequency as a function of a control voltage and a power supply voltage;

a phase comparator for comparing a phase of the output signal with a phase of a reference signal and outputting a difference signal as a function thereof; and

a charge pump for producing the control voltage in response to the difference signal, the control voltage being bound within predetermined limits; and

wherein when the control voltage changes to a value close to one of the limits, [[and]] the power supply voltage is modified independently of the control voltage so as to maintain the stability of the output signal from the VCO.

14. (Previously Presented). A radio communication apparatus comprising a PLL frequency synthesizer which outputs a signal having a set frequency, the PLL frequency synthesizer including:

a voltage-controlled oscillator (VCO) for generating an output signal having voltage and a frequency as a function of a control signal and a power supply signal;

a phase comparator for comparing a phase of the output signal with a phase of a reference signal and outputting a difference signal as a function thereof; and

a charge pump for producing the control signal in response to the difference signal,

wherein the power supply signal is modified independently of the control signal to thereby widen an apparent lock range of the PLL.

15. (Previously Presented). The radio communication apparatus of claim 14, wherein the PLL frequency synthesizer further includes a buffer amplifier for protecting the voltage-controlled oscillator from the an abrupt variation at a load portion of the PLL frequency synthesizer.